

**Michigan Department of Transportation (MDOT)**  
**FY 2020 Appropriation Reporting - Public Act 66 of 2019, Section 661**

**INNOVATIVE ROAD MATERIALS, ROAD AND BRIDGE DESIGN, AND  
CONSTRUCTION SPECIFICATIONS**  
September 30, 2020

**I. REPORTING REQUIREMENTS**

Per Section 661 of P.A. 66 of 2019, the department shall perform the following:

- A. Establish a collaborative stakeholder group to review innovative road materials and innovative road and bridge design and construction specifications.
- B. Report quarterly on the activities of the collaborative stakeholder group.
- C. Describe innovative materials and innovative road and bridge design and construction specifications submitted for review.
- D. Describe the innovative materials and innovative road and bridge design and construction specifications submitted for review, the submissions recommended for adoption by the department and the submissions not recommended for adoption by the department.

**II. REPORTING ACTIVITIES**

*A. Collaborative Stakeholder Group*

The Michigan State Transportation Innovations Council (MI-STIC) is a collaborative stakeholder group representing various levels of the transportation community to comprehensively and strategically consider all sources of transportation. Please see the MI-STIC website for the current roster at the following link:

[https://www.michigan.gov/mdot/0,4616,7-151-9623\\_61313-507811--,00.html](https://www.michigan.gov/mdot/0,4616,7-151-9623_61313-507811--,00.html)

*B. Collaborative Stakeholder Group Quarterly Activities*

For the current reporting period, a MI-STIC meeting was held on September 25, 2020, a Peer Exchange was held on August 5 and 6, 2020, and the following items represent an overview of the quarterly MI-STIC activities:

- i. Discussion regarding Local Innovation Subcommittee and development of a Local Agency Research Board starting with the submittal of a STIC initiative funding request.
- ii. MDOT continues development of an innovative website. Key MDOT participants, with an interest in creating an external facing innovation website, have been identified and are meeting weekly to facilitate its creation. This innovation website will serve as an external interface tool demonstrating department accomplishments in deploying innovation statewide. The initial focus will be on areas of research, new products, innovative contracts, mobility/flow, construction work zones, MDOT firsts, and UAS/new technology.

- iii. The MI-STIC Peer Exchange occurred on the afternoons of August 5 and 6, 2020 virtually in MS Teams and several Michigan members were able to join. The Peer Exchange was an excellent way to learn, share, and network on transportation innovation processes, funding, structures, and best practices with ten other states. Some of what was learned will be incorporated into the STIC Charter and regular MI-STIC activities. There were a wide range of participants from very experienced to others who were new to MI-STIC and innovation processes within their transportation agency. A final report is being developed and will be distributed to attendees in October 2020.
- iv. The MI-STIC continues solicitation for the MI-STIC Incentive Program, which offers technical assistance and up to \$100,000 in federal funding per STIC, per year to support the costs of standardizing innovative practices in a state transportation agency or other public sector STIC stakeholder. The proposals must be submitted to FHWA as referenced in the following links for FY 2021:
  - a. MI-STIC website:  
[https://www.michigan.gov/mdot/0,4616,7-151-9623\\_61313-507811--\\_00.html](https://www.michigan.gov/mdot/0,4616,7-151-9623_61313-507811--_00.html)
  - b. National STIC website:  
<https://www.fhwa.dot.gov/innovation/stic/>
- v. The next MI-STIC meeting is scheduled for December 4, 2020.

*C. Submissions Presented for Review*

Accomplishments for the third quarterly reporting period are noted in Section IIB above.

*D. Submission Recommendations*

Submissions adopted/not adopted by the department

Accomplishments for the third quarterly reporting period are noted in Section IIB above.

**Michigan**  
**State Transportation Innovation Council**  
**Meeting Minutes**  
**September 25, 2020, 8:30 a.m. – 10:00 a.m.**  
**Teams Virtual Meeting**

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Attendance

Present: Carol Aldrich (MDOT), Lisa Branch (MDOT), Ted Burch (FHWA), Tim Colling (MTU-LTAP), Daniel DeGraaf (MCA), Wayne Harrall (Kent County), Mary Hoffmeyer (MDOT), Tony Kratofil (MDOT), Laura Mester (MDOT), Chuck Mills (APAM), Doug Needham (MAA), Steve Puuri (CRA of MI), Jean Ruestman (MDOT), Christine Simon (Senate), Brett Stanton (APAM), Brad Wieferich (MDOT)

Absent: Monica Ackerson (MRPA), Paul Ajegba (MDOT), Tom Barrett (Senate), Gregg Brunner (MDOT), Ron Brenke (ACEC), Ryan Buck (WATS), Glenn Bukoski (MITA), Joe Bush (MADC), Matt Chynoweth (MDOT), Denise Donohue (CRA of MI), Russell Jorgenson (FHWA), Bob Lindbeck (Alger County), Jack O'Malley (House of Representatives), Andy Pickard (FHWA), Wayne Schoonover (GTCRC), Todd White (MDOT),

- 1) Welcome – Tony Kratofil and Ted Burch
  - a) Tony opened the meeting with a welcome statement.
  - b) Ted highlighted the Every Day Counts (EDC)-6 kick off and the EDC-5 coming to a close for formal activities.
- 2) Innovation Presentation: Carbon Fiber Used in Bridge Construction – American Association of State Highway and Transportation Officials Sweet 16 Award – Matt Chynoweth

*Item tabled as Matt was not available to present.*

- 3) MI-STIC Peer Exchange Follow-up – Ted Burch and Carol Aldrich
  - a) Carol highlighted the results from the survey. 14 attendees responded. We had an overall great response to the Peer Exchange.
    - i) The following questions and comments regarding the results were noted:
      - (1) There is a need to focus on keeping the momentum moving forward.
      - (2) Should future meetings incorporate the survey results?
      - (3) Should the committee meet more often?
        - (a) Tony suggested that Michigan look at how other states are handling (Wisconsin, Pennsylvania). Pennsylvania provides an orientation packet to new members. He has also seen a cost savings calculator included and believes that could be a helpful tool to include. Carol noted that Research Administration has reached out to Arizona, Pennsylvania, and Wisconsin, but has not heard back yet.
      - (4) Should the meetings be shorter in duration but occur more often in order to keep the momentum going?
      - (5) Is there a need for more accountability (presentations from leads, providing needed assistance, a welcome/orientation packet)?

- (6) Should we hold annual workshops? Arizona currently does this and provides a monthly publication that spans across the industry and highlights recent accomplishments. Tony suggested 30 to 45-minute monthly touchpoint meetings, with two-three workshops offered a year. Invite broader participants to present at the workshops and make them presentation orientated.
- (7) Tim Colling mentioned a paper newsletter is better than the e-newsletters which many of us delete from our email inbox's.
- (8) Steve Puuri highlighted the [www.monday.com](http://www.monday.com) program as being a useful summarization and project management tool.
- (9) Should we include MDOT communications folks in future meetings? Per Tony, this should be explored.

**Action Item: Carol will touch base with Amber Thelen for assistance related to the Monday.com program.**

**Action Item: Tony would like next year's STIC calendar to be adjusted and see about including [www.monday.com](http://www.monday.com) to identify project initiatives and progress.**

- 4) County Road Association: Local Innovation Subcommittee Report – Steve Puuri
  - a) Steve highlighted Angela Kline of Jackson and her enthusiastic involvement on this subcommittee.
  - b) Ted asked about ways to get people involved with innovation deployment. Who is the contact for Local Agencies and External Partners to submit ideas? Should the counties be involved?
  - c) Tim noted that there should be a link between local and state research which is a topic that will be discussed in the Local Research Board Peer Exchange.
- 5) STIC Incentive Funded Project Status – Carol Aldrich
  - a) We did not spend the entire \$100,000 for 2020 for the first time in several years but as a group should continue to ask for everyone's ideas and proposals related to STIC incentive projects.
  - b) A live, in-person peer exchange event is preferred for the Local Road Research Board, and by delaying it to next spring or summer, this might be possible.
  - c) Steve discussed a future incentive proposal for emergency response/funding, to include MDOT, the Michigan State Police and the Federal Highway Association.
    - What money and documentation do the locals need to complete before an emergency declaration is made?
    - How can it be done with the least impact and timely restore infrastructure?
    - Keep sustainability in mind when working on the proposal. There have been five or six recent emergency events in Michigan where each of those counties requested a main resource to contact. He is hoping to be able to advance the proposal by this fall.
    - Tim proposed a disaster “navigator” and that this mode of delivery is being considered.
    - Carol suggested including Eileen Pfifer from MDOT to give a presentation.
    - Steve mentioned a “toolbox” that is being used on their website that allows you to search by topic.

- 6) Every Day Counts (EDC)-6 Update – Ted Burch
  - a) National Kick off was on September 23, 2020.
  - b) Seven innovations are included.
  - c) Panel discussion occurred with American Road & Transportation Builders Association (ARTBA)AASHTO and LTAP.
  - d) A virtual summit may happen in early to mid-November and will provide in depth presentations on all seven innovations. Higher than normal participation is expected due to there being no limit on the number of participants that are allowed to attend.
  - e) Something new this year, the virtual summit will have an exhibit pavilion to showcase home-grown innovations. We need a point person by 10/8/20 and they will have until 11/5/20 to upload up to 10 Michigan innovations. **Is there a volunteer?** Let Ted know.

**ACTION: Ted would like to send out the EDC Innovation Template and associated documents along with these meeting minutes.**

- 7) Open Discussion
  - a) Brad Wieferich discussed expanding internal MDOT Transportation Highlights. Possibly include external partners. They could partner with locals and industry folks to occur twice a year and would showcase all that is currently being done.
  - b) Carol mentioned the STIC Peer Exchange final report is being reviewed right now and should be distributed by our Dec meeting and the MDOT Innovation website is planned to be released in the next few months and we will hopefully be able to present it at the Dec meeting.
  - c) Tony closed the meeting by reiterating the need to look at reformatting our approach for next year.

## EDC-6 Virtual Summit Innovation Showcase Pavilion

### ***What is it?***

The EDC-6 Virtual Summit will have an exhibit pavilion to showcase home-grown innovations that STIC members developed and implemented in your state. The purpose is to celebrate and share these innovations that save lives, time and resources with a wider audience to expand their potential use and impact.

Please note that these innovations do not need to be EDC-related, or previously funded through the STIC Incentive or AID Demonstration programs. Think about innovations that you feel that other state and local agencies would benefit.

### ***How many innovations can be exhibited?***

Each STIC may choose up to 10 innovations preferably from a diverse group of STIC members such as local agencies, contractors, consultants, universities, or maintenance departments. The innovations must meet the following criteria:

- 1) the innovation was created in-house and successfully deployed
- 2) the innovation can be adapted and used by another state.
- 3) Innovations that are still in the research stage should not be submitted.

### ***What is the due date?***

**By October 8, 2020**, provide the name, phone number, and email address of one (1) point of contact from your STIC that will be responsible for collecting information from your STIC members and uploading information and website links onto the Innovation Showcase Pavilion. **Send contact information to [Innovation@dot.gov](mailto:Innovation@dot.gov).**

The contact person will have until **November 5<sup>th</sup>** to upload the innovations into the Innovation Showcase Pavilion (step by step instructions for how to upload will be provided at a later date).

### ***What information needs to be submitted?***

Use the 1-page template (provided ppt and word version) to create a brief overview of your Innovation (see next page for sample). This template should then be converted to a pdf to upload into the Innovation Showcase Pavilion (make sure the links are clickable for the ease of navigation).

**-OR-**

Create a pre-recorded video to showcase your innovation (no more than 3-minutes long) – use a video meeting recording, add audio and/or video to a ppt, or another method that works for you to upload a mp4 file.

### ***How will attendees be able to find specific innovations?***

The themes of the EDC Summit are “People”, “Processes”, and “Products”. Each innovation will be first categorized by one of those themes followed by other keywords. Please add these in the keyword section of your template and indicate the appropriate keywords when uploading the documents to help attendees navigate to your innovations (see list of potential keywords on next page).

### ***Who will be included in the Innovation Showcase?***

- Each State Transportation Innovation Council (to feature all 54 STICs)








- Center for Local Aid Support (to feature additional Local & Tribal Transportation Agencies and Build a Better Mousetrap Winners from 2019 and 2020)
- AASHTO A.I.I. – Lead State Innovations

Select the most appropriate category – Add this to the Keywords Section of the Template:

- People (Increase engagement)
- Processes (Save time on project delivery)
- Products (New products or new applications of existing products)

Keywords – the below keywords can be added to the template to help navigation:

- |                |                               |                               |
|----------------|-------------------------------|-------------------------------|
| ○ Operations   | ○ Funding                     | ○ Intersections               |
| ○ Safety       | ○ Hydraulics                  | ○ Civil Rights                |
| ○ Planning     | ○ Work Zones                  | ○ Public Involvement          |
| ○ Environment  | ○ Pedestrians                 | ○ Weather                     |
| ○ Structures   | ○ Right-of-Way / Realty       | ○ Traffic Incident Management |
| ○ Pavement     | ○ Emergency Response / Relief | ○ Technology                  |
| ○ Design       | ○ Geotechnical                | ○ Freight/Goods Movement      |
| ○ Construction | ○ Materials                   | ○ Maintenance                 |
| ○ Contracting  | ○ Asset Management            | ○ Stormwater Management       |

Insert Innovation Name HERE		Insert LOGO 
<b>OVERVIEW OF INNOVATION</b> Summary of Innovation - Make sure the summary is clear and concise. 	<b>Insert Image of Innovation HERE</b>  <small>Source: Insert Photo Source HERE</small>	<b>FIND OUT MORE . . .</b> <ul style="list-style-type: none"><li>Website Link or QR Code: </li><li>Contact Info: Name, Phone, Email </li><li>Keywords: </li></ul>
<b>BENEFITS</b> Benefits/Results - Make sure the statement is clear and concise. 		



## EXAMPLE - Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)



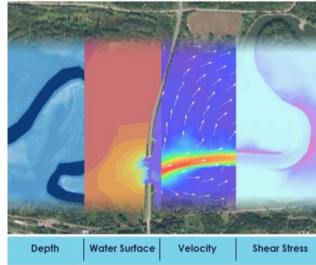
### OVERVIEW OF INNOVATION

**Next-generation hydraulic tools improve the understanding of complex interactions between river or coastal environments and transportation assets, enabling better design, enhanced communication, and more efficient project delivery.**

Two-dimensional (2D) hydraulic modeling software, graphical interfaces, and supporting resources are now available that can be applied to infrastructure design to improve understanding of the complex interactions between river or coastal environments and transportation assets. Recent advances in computer hardware, modeling software, Geographic Information Systems, and survey practices have made 2D modeling very efficient, intuitive, and accessible to engineers and designers.

Because 2D models avoid many of the limiting assumptions required by 1D models, the results can significantly improve the ability of highway agencies to design safer, more cost-effective, and resilient structures on waterways.

In addition, the 3D visualization capabilities of these modeling tools aid in communicating design results and implications to a variety of stakeholders through intuitive and visually rich graphical output.



Source: FHWA

### BENEFITS

The benefits of using CHANGE include Improved Quality and Resiliency, Enhanced Collaboration, and Streamlined Delivery.

In the past 3 years, the Colorado DOT saved more than \$14 million using 2D hydraulic modeling to develop more detailed analyses of bridges, culverts, and roadways than with 1D modeling.

### FIND OUT MORE . . .

- CHANGE Website  
[https://www.fhwa.dot.gov/innovation/everydaycounts/edc\\_5/change2.cfm](https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/change2.cfm)
- FHWA Hydraulics Website  
<https://www.fhwa.dot.gov/engineering/hydraulics/>
- Colorado DOT Video  
<https://youtu.be/C-c8UTpb5o>

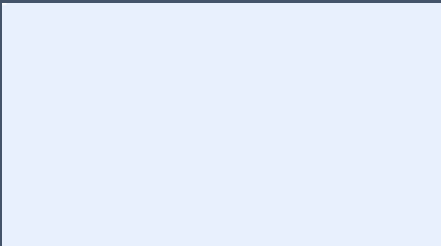
### FHWA Resource Center

**Scott Hogan**  
(720) 576-6026, [Scott.Hogan@dot.gov](mailto:Scott.Hogan@dot.gov)

**Laura Girard**  
(970) 217-3894, [Laura.Girard@dot.gov](mailto:Laura.Girard@dot.gov)

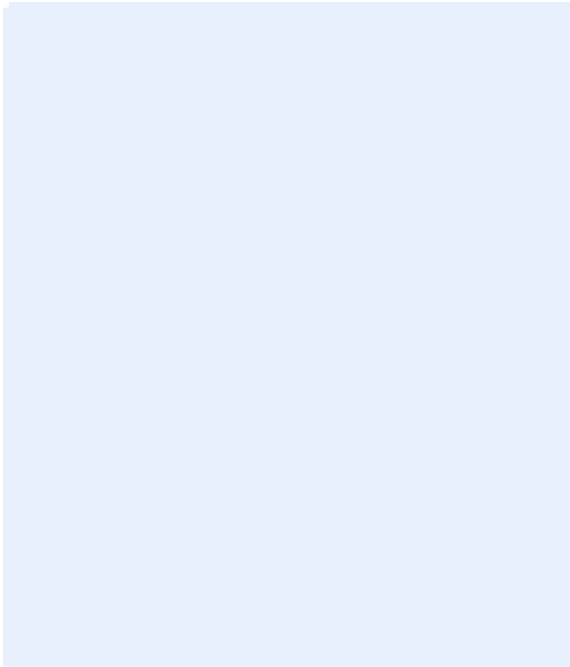
- Process, Hydraulics

# Insert Innovation Title



## OVERVIEW OF INNOVATION

Click or tap here to enter text Provide overview of project here. Make sure the summary is clear and concise.



*Insert Photo Source Here*

## FIND OUT MORE . . .

- Insert web information here
- Insert web information here
- Insert web information here

## BENEFITS

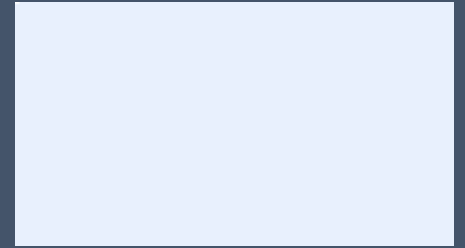
Click or tap here to enter text Highlight project benefits here. Make sure the statement is clear and concise.

Agency Name

Name  
Title  
Phone  
Email address

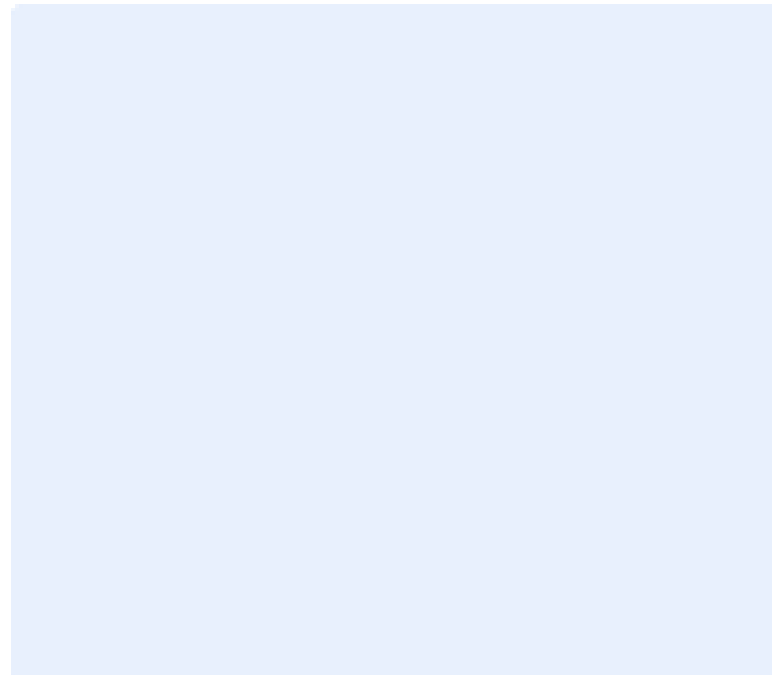
Key Words – Separate by comma

# Insert Innovation Title



## OVERVIEW OF INNOVATION

Click or tap here to enter text Provide overview of project here. Make sure the summary is clear and concise.



*Insert Photo Source Here*

## BENEFITS

Click or tap here to enter text Highlight project benefits here. Make sure the statement is clear and concise.

## FIND OUT MORE ...

- Insert web information here
- Insert web information here
- Insert web information here

Agency Name

Name

Title

Phone

Email address

Key Words – Separate by comma

## CROWDSOURCING FOR ADVANCING OPERATIONS

Crowdsourced data can be obtained whenever and wherever people travel, allowing agencies to capture in real time what happens between sensors, in rural regions, along arterials, and beyond jurisdictional boundaries. Agencies at all levels can use crowdsourced data integrated from multiple streams to optimize roadway use for reduced congestion and increased safety and reliability.

## E-TICKETING AND DIGITAL AS-BUILTS

Converting paper-based materials ticketing systems and as-built plans into electronic (e-Ticketing) workflows and digital as-builts enhances the accessibility of highway project data. e-Ticketing improves the tracking, exchange, and archiving of materials tickets. Digital information, such as 3D design models and other metadata, enhances the future usability of as-built plans for operations, maintenance, and asset management.

## NEXT-GENERATION TIM: INTEGRATING TRAINING, DATA, AND TECHNOLOGY

Traffic Incident Management (TIM) programs aim to shorten the duration and impact of roadway incidents and improve the safety of motorists, crash victims, and responders. New tools, data, and training mechanisms are available that can benefit both new and existing TIM programs, including local agency and off-interstate applications.

## STRATEGIC WORKFORCE DEVELOPMENT

The demand for highway construction, maintenance, and operations workers is growing, while at the same time, emerging technologies require these workers to have new skills. The Highway Construction Workforce Partnership has developed new resources and innovative strategies for identifying, training, and placing the workforce needed to fill the construction jobs that support the Nation's highway system.

## TARGETED PAVEMENT OVERLAY SOLUTIONS

Pavement overlays represent a significant portion of highway infrastructure dollars. State and local highway agencies can maximize this investment and help ensure safer, longer-lasting roadways by employing innovative overlay procedures that will improve pavement performance, lessen traffic impacts, and reduce the cost of pavement ownership.

## UHPC FOR BRIDGE PRESERVATION AND REPAIR

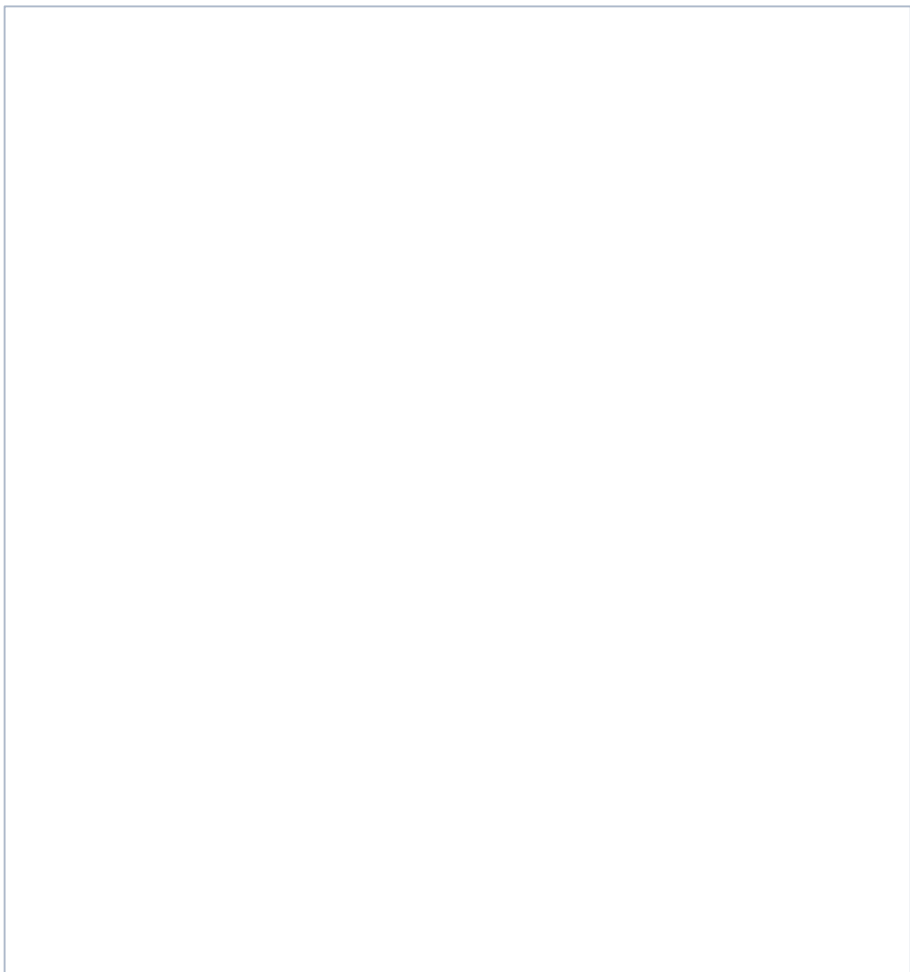
Ultra-high performance concrete (UHPC) is a new material for bridge construction that has become popular for field-cast connections between prefabricated bridge elements. Bridge preservation and repair is an emerging and promising application for UHPC. UHPC-based repair solutions are robust, and offer superior strength, durability, and improved life-cycle cost over traditional methods. State and local agencies can deploy UHPC for bridge preservation and repair to maintain or improve bridge conditions.

## VIRTUAL PUBLIC INVOLVEMENT

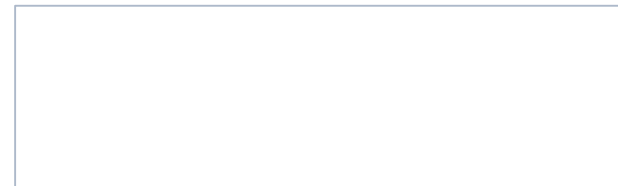
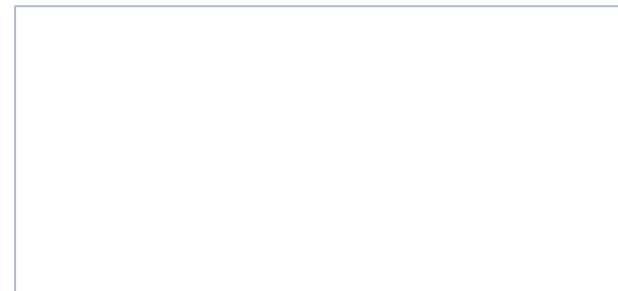
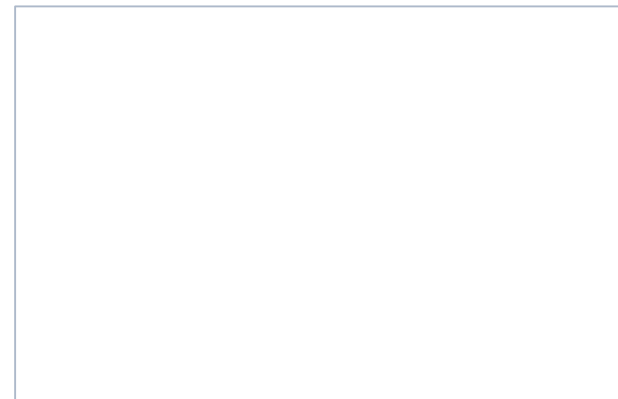
Public engagement during transportation project planning and development helps agencies identify issues and concerns early in the process, which can ultimately accelerate delivery. Virtual public involvement strategies supplement traditional face-to-face information sharing with technology platforms that increase the number and variety of methods agencies use to inform the public, receive feedback, and collect and consider comments.



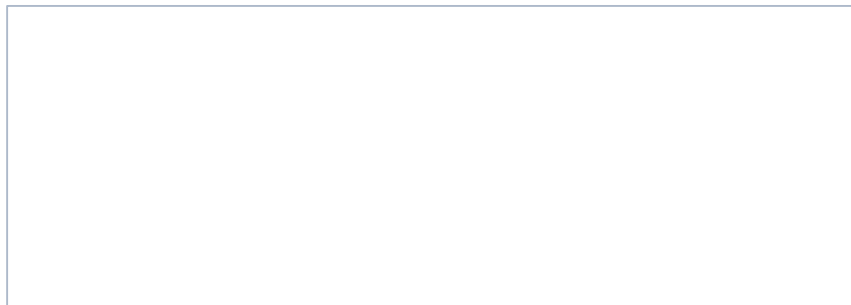
## OVERVIEW OF INNOVATION



## FIND OUT MORE . . .



## BENEFITS



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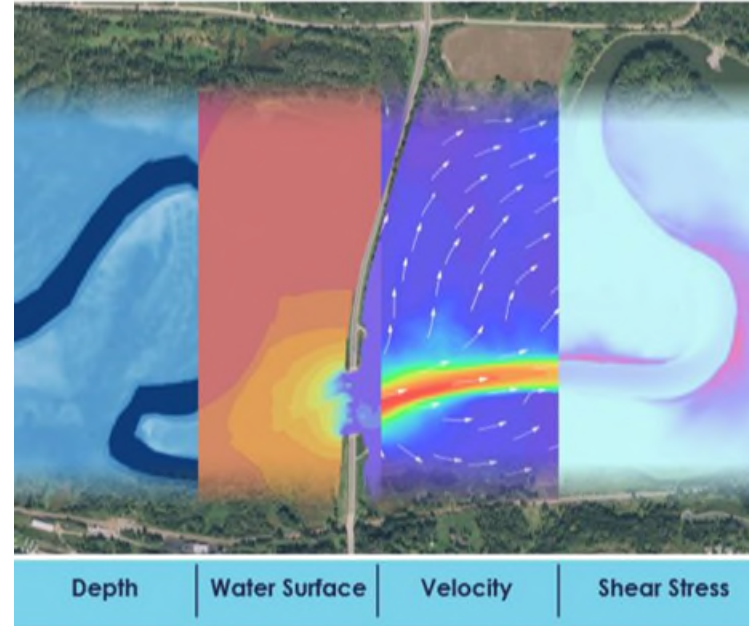
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- FHWA Hydraulics Website  
<https://www.fhwa.dot.gov/engineering/hydraulics/>
- Colorado DOT Video  
<https://youtu.be/C-c8UTpbSo>

## FHWA Resource Center

**Scott Hogan**  
(720) 576-6026, [Scott.Hogan@dot.gov](mailto:Scott.Hogan@dot.gov)

**Laura Girard**  
(970) 217-3894, [Laura.Girard@dot.gov](mailto:Laura.Girard@dot.gov)

- Process, Hydraulics

# To record Audio / Video with PPT to make mp4 file (if you want to turn your ppt into a mp4 file – not required)

- Create ppt content
- Click “Slide Show” toolbar above
- Click “Record Slide Show” above (record from beginning)
- You should see screen similar to this slide
  - Make sure audio/video input is selected
  - Make sure microphone/camera are turned on
  - Frame yourself w/ proper light by turning on preview
- Start recording, advance slides, look at camera, give presentation, stop recording
- Each recording will be saved on individual slides, you can move and adjust video pod to not cover slide material
- Save ppt document to capture content
- Save as .mp4 files to turn into a video file

*(please note that links are NOT clickable when saved as mp4)*

